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EXAMINER

NGUYEN, LAM S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 08/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,712

Applicant(s)

ISHII ET AL.

Examiner

LAM S. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-19 and 24-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-19 and 24-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/26/2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 4, 12-13, 15-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Yamaka et al. (US 6089766) and Ahne et al. (US 6637853).

Referring to claim 1:

Suzuki et al. discloses an image recording apparatus comprising:

a recording section for recording (*FIG. 30, element 609: RECORDING MEANS and column 3, lines 54-56*), on the basis of input image information (*FIG. 30: The IMAGE DATA 660 is provided to RECORDING MEANS 609*), printed output image on a recording medium by ejecting recording droplets from ejection openings of a recording head and adhering the droplets

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onto the recording medium (*column 5, lines 60-65: The ink jet recording unit causes fine ink droplets to fly toward the recording medium for recording by the adhesion of these ink droplets to the recording medium*);

a monitoring section (*FIG. 30, element 662 and column 3, lines 6-65*) for monitoring and determining whether a phenomenon which may hinder image recording has occurred (*column 22, lines 43-46: The phenomenon is a disabled ejection that takes place if the recording image and the image data stored in the memory 661 are compared and determined to be different*);

a reading section (*column 3, lines 53-62*) for photoelectrically reading the output image (*FIG. 30, element 631 and column 22, lines 36-38: A monitor unit 631 reads the recorded image by the recording head; FIG. 28 and column 20, lines 58-65 describe the reading unit 631 as an optical sensing device*);

an adopting section (*column 3, line 65 to column 4, line 2: The complementary recording means*) for carrying out a process to overcome the phenomenon, when it is determined that said phenomenon has occurred (*column 22, lines 43-53: If the image defects take place, the vertical position of the recording head is modified thereby to perform a correction recording from the different discharging ports of the recording head to complement such missing portion in accordance with the corrected image data*); and

- Suzuki et al., however, does not disclose wherein the monitoring section monitors whether said phenomenon has occurred by comparing results of the reading of a plurality of the output images performed by said reading section with one another.

Yamaka et al. discloses a method for controlling an image printing device including printing a plurality of images (*FIG. 25: PRINT PATTERN including 1st patch and 2nd patch*), reading the plurality of printed images (*FIG. 25, steps S620-621: Scan 1st and 2nd patches*), comparing the outputs of the reading to each other (*FIG. 25, step S623*), and indicating an error that has occurred in accordance to the comparison (*FIG. 25, steps S630-631*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the monitoring method disclosed by Suzuki et al. to include printing a plurality of images, reading the plurality of printed images, comparing the outputs of the reading to each other, and indicating an error that has occurred in accordance to the comparison as disclosed by Yamaka et al. The motivation for doing so would have been to allow for easy measurement of printing density differences caused by differences in output characteristics of multiple printheads as taught by Yamaka et al. (*column 4, lines 5-10*).

- Suzuki et al. and Yamaka also do not disclose wherein the plural images are successively recorded from ejection openings of a single recording head in accordance to information of the plural input images.

Ahne et al. discloses a printing apparatus including a single print head (*FIG. 1, element 24*) having a plurality of ink jet nozzles (ejection openings) (*FIG. 2, elements 1, 2, 3, ...640*) for recording a test pattern on a printing medium (*FIG. 1, element 8*), wherein the test pattern includes a plural printing images (*FIG. 1, elements 10 and 12*) that are successively printed by the single print head.

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing apparatus disclosed by Suzuki (in view of

Yamaka) to successively record the plural images from a single print head as disclosed by Ahne et al. The motivation for doing so would have been to be able to identify malfunctioning ink jet nozzles and provide this information to compensate for the malfunctioning nozzles when generating print data as taught by Ahne et al. (*column 1, lines 34-39*).

- **Suzuki et al. also discloses the following claimed invention:**

Referring to claim 2: a storage section for storing the image information (*FIG. 30, element 661: MEMORY*),

Referring to claim 3: wherein the monitoring section monitors whether said phenomenon has occurred by comparing the results of the reading performed by the reading section to the input image information corresponding to said output image (*column 22, lines 39-47: The phenomenon is a disabled ejection that takes place if the recording image and the image data stored in the memory 661 are compared and determined to be different*), and monitors whether **at least one** of failure of the recording section and a decrease in a vacant storage capacity of the storage section has occurred (*FIG. 31 and column 5, lines 23-24: The process monitors at least if image defects due to the failure of ink ejection of a nozzle (recording section) has occurred*).

Referring to claim 4: further comprising:

an acquiring section for obtaining original image information which indicates an original image to be recorded on a recording medium (*FIG. 8, element 1 and column 5, lines 39-45: An image reading device 1 reads and converts an original image into the original image data*); and

an image processing section for generating the image information which indicates

an image to be recorded on the recording medium by carrying out an image processing said original image information and for outputting the image information to the recording section (*FIG. 8, element 2 and column 5, lines 43-45: An image processing unit 2 receives the original image data and outputs them as the image data*).

Referring to claim 12: further comprising a cleaning section for cleaning around an ejection opening of the recording head (*column 22, lines 15-20: A corresponding cleaning device for cleaning off the dust particles on the ejection surface of the recording head*).

Referring to claim 13: wherein the adopting section operates the cleaning section when is determined that an ejection opening of the recording head has clogged (*column 23, lines 43-55: If the discharging port (ejection opening) is completely clogged (step S172, Fig. 32), a cleaning process (a recovery process S173, Fig. 32) is executed*).

Referring to claim 15: further comprising:

main tank (*FIG. 29, element 609*) which is provided in the recording head and stores a recording solution;

a supply mechanism (*FIG. 29, elements 651c-655c*) for supplying the recording solution the main tank; and

a subtank (*FIG. 29, element 611*) connected to the main tank via the supply mechanism.

Referring to claim 16: wherein the adopting section controls the supply mechanism to supply recording solution from the subtank to the main tank (*column 22, lines 1-5: During the ejection recovery process, the pump 651c operates to supply ink to the recording head under pressure*).

Referring to claim 17: further comprising an input section for inputting information relating to an image into the recording section (*FIG. 8, element 2*).

Referring to claim 19: wherein when it is determined that said phenomenon has occurred, said adopting section operates an alarm to call an operator (*FIG. 32, step S178 and column 23, lines 52-58: If the discharging port is completely clogged, a warning is displaced to prompt the replacement of recording heads*).

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Yamaka et al. (US 6089766) and Ahne et al. (US 6637853) as applied to claim 4, and further in view of Katsuragi (JP 403256445 A).

Suzuki et al., as modified, discloses the claimed invention as discussed above except wherein the monitoring section monitors whether at least one of failure the acquiring information by the acquiring section, inferior obtaining of original information by the acquiring section, and failure of image processing by the image processing section has occurred.

Katsuragi discloses a recording image apparatus having a monitoring section (*Abstract: A operation input monitoring function*) for monitoring the acquiring of original image data outputted from an original reading section 7 to an operation input part 3 in order to detect transmission failure or erroneous transmission.

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Suzuki, as modified, to include the monitoring section to monitor the failure of the acquiring information as disclosed by Katsuragi. The motivation for doing so would have been to eliminate or prevent transmission failure or erroneous transmission as taught by Katsuragi (*Abstract*).

3. Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Yamaka et al. (US 6089766) and Ahne et al. (US 6637853) as applied to claim 1, and further in view of Saito et al. (US 5508722).

Suzuki et al., as modified, discloses the claimed invention as discussed above except wherein when it is determined that a phenomenon for inducing a decrease in an image quality of an output image has occurred, in order to eliminate a decrease in the image quality which hinders section adjusts/increases, on the basis of image recording, the adopting results of the reading performed by the reading section, an ejection amount of recording droplets such that a decrease in the image quality of the output image is corrected.

Saito et al. discloses an ink jet apparatus having means for monitoring image quality of an output image by detecting the absence of ink discharge from a recording head and means for adjusting/increasing an ejection ink amount in accordance to the output of the detecting means (*column 2, lines 20-25; column 14, lines 29-33; column 15, lines 35-42*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Suzuki et al., as modified, to include means for adjusting/increasing ink ejection amount when the ink discharge is absence as disclosed by Saito et al. The motivation for doing so would have been to constant ink ejection amount in order to obtain higher quality recording images as taught by Saito et al. (*column 19, lines 57-61*).

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Yamaka et al. (US 6089766) and Ahne et al. (US 6637853) as applied to claim 17, and further in view of Osawa et al. (US 6552819).

Suzuki et al., as modified, discloses the claimed invention as discussed above except wherein when it determined that a decrease in a vacant storage capacity of the storage section has occurred, the adopting section controls the input section to temporarily stop input of the image information.

Osawa et al. discloses a process in an image processing apparatus having an input section for inputting image information into a memory, wherein when the available capacity of the memory becomes less than a predetermined amount, input of the image information by the input section to the memory is stopped (*column 2, lines 43-50 and column 10, lines 6-13*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the operation of the printing apparatus disclosed by Suzuki et al., as modified, to stop inputting image information to the storage section when a decrease in a vacant storage capacity of the storage section has occurred as disclosed by Osawa et al. The motivation for doing so would have been to prevent overflow of the memory as taught by Osawa et al. (*column 2, lines 40-50*).

5. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Yamaka et al. (US 6089766) and Ahne et al. (US 6637853) as applied to claim 1, and further in view of Suzuki et al. (US 5353052).

Suzuki et al. "300", as modified, discloses the claimed invention as discussed above and also discloses a fixing section (*FIG. 9, element 45*) and an image monitoring section (*FIG. 30, element 631*). Suzuki et al. "300", however, is silent wherein the fixing section is downstream of said recording section and the image monitoring section is downstream of said fixing section.

Suzuki et al. "766" teaches a process for correcting in a printing apparatus including steps of recording images (test pattern) (*FIG. 27, step S11*), fixing recorded images (*FIG. 27, step S13*), and reading/monitoring fixed recorded images (*FIG. 27, step S15*), wherein the step of fixing is done in order to allow ink of the images to be stabilized on a printing medium before the images are read (*column 27, lines 10-30*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Suzuki et al. "300" to locate the image monitoring unit is downstream the fixing unit in order to fix the ink of the images before the images are read by the image monitoring unit as disclosed by Suzuki et al. "766". The motivation for doing so would have been to ensure the density state of the images stabilized as taught by Suzuki et al. "766" (*column 27, lines 10-30*).

6. Claims 9-11, 26-27, 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Osawa et al. (US 6552819).

Referring to claim 9:

Suzuki et al. discloses an image recording apparatus comprising:

a recording section for recording (*FIG. 30, element 609: RECORDING MEANS and column 3, lines 54-56*), on the basis of input image information (*FIG. 30: The IMAGE DATA 660 is provided to RECORDING MEANS 609*), an output image on a recording medium by ejecting recording droplets from an ejection opening of a recording head and adhering the droplets onto the recording medium (*column 5, lines 60-65: The ink jet recording unit causes fine ink droplets to fly toward the recording medium for recording by the adhesion of these ink droplets to the recording medium*);

a monitoring section (*FIG. 30, element 662 and column 3, lines 6-65*) for monitoring and determining whether a phenomenon which may hinder image recording has occurred (*column 22, lines 43-46: The phenomenon is a disabled ejection that takes place if the recording image and the image data stored in the memory 661 are compared and determined to be different*);

a reading section (*column 3, lines 53-62*) for photoelectrically reading the output image (*FIG. 30, element 631 and column 22, lines 36-38: A monitor unit 631 reads the recorded image by the recording head; FIG. 28 and column 20, lines 58-65 describe the reading unit 631 as an optical sensing device*);

an adopting section (*column 3, line 65 to column 4, line 2: The complementary recording means*) for carrying out a process to overcome the phenomenon, when it is determined that said phenomenon has occurred (*column 22, lines 43-53: If the image defects take place, the vertical position of the recording head is modified thereby to perform a correction recording from the different discharging ports of the recording head to complement such missing portion in accordance with the corrected image data*); and

a storage section for storing the image information (*FIG. 30, element 661: MEMORY*),

wherein the monitoring section monitors whether said phenomenon has occurred by comparing the results of the reading performed by the reading section to the input image information corresponding to said output image (*column 22, lines 39-47: The phenomenon is a disabled ejection that takes place if the recording image and the image data stored in the memory 661 are compared and determined to be different*).

Suzuki et al., however, does not disclose monitoring whether a decrease in a vacant storage capacity of the storage section has occurred to determine whether said phenomenon has occurred, the adopting section controls the input section to temporarily stop input of the image information.

Osawa et al. discloses a process in an image processing apparatus having an input section for inputting image information into a memory, wherein when the available capacity of the memory is monitored to determine if it decreases or becomes less than a predetermined amount, then the image information inputted by the input section to the memory is stopped (*column 2, lines 43-50 and column 10, lines 6-13*) in order to avoid failure of image output (hinder image recording) due to overrun/overflow of the image information memory (*Abstract*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the operation of the printing apparatus disclosed by Suzuki et al. to include monitoring a decrease in a vacant storage capacity of the storage section as disclosed by Osawa et al. The motivation for doing so would have been to prevent overflow of the memory as taught by Osawa et al. (*column 2, lines 40-50*).

Suzuki et al. also discloses the following claimed invention:

Referring to claim 10: further comprising:

an acquiring section for obtaining original image information which indicates an original image to be recorded on a recording medium (*FIG. 8, element 1 and column 5, lines 39-45: An image reading device 1 reads and converts an original image into the original image data*); and

an image processing section for generating the image information which indicates

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an image to be recorded on the recording medium by carrying out an image processing said original image information and for outputting the image information to the recording section (*FIG. 8, element 2 and column 5, lines 43-45: An image processing unit 2 receives the original image data and outputs them as the image data*).

Referring to claim 11: wherein the monitoring section uses, as the image information corresponding to said output image, at least one of original image information, image information obtained by carrying out a predetermined image processing of the original image information and image information outputted from the image processing section (*FIG. 8: The image processing unit 8 converts the original image information from the image reading device 1 into the image data provided to the image recording unit 3 for forming the image*).

Referring to claim 26: further comprising a cleaning section for cleaning around an ejection opening of the recording head (*column 22, lines 15-20: A corresponding cleaning device for cleaning off the dust particles on the ejection surface of the recording head*).

Referring to claim 27: wherein the adopting section operates the cleaning section when is determined that an ejection opening of the recording head has clogged (*column 23, lines 43-55: If the discharging port (ejection opening) is completely clogged (step S172, Fig. 32), a cleaning process (a recovery process S173, Fig. 32) is executed*).

Referring to claim 29: further comprising:

main tank (*FIG. 29, element 609*) which is provided in the recording head and stores a recording solution;

a supply mechanism (*FIG. 29, elements 651c-655c*) for supplying the recording solution the main tank; and

a subtank (*FIG. 29, element 611*) connected to the main tank via the supply mechanism.

Referring to claim 30: wherein the adopting section controls the supply mechanism to supply recording solution from the subtank to the main tank (*column 22, lines 1-5: During the ejection recovery process, the pump 651c operates to supply ink to the recording head under pressure*).

Referring to claim 31: further comprising an input section for inputting information relating to an image into the recording section (*FIG. 8, element 2*).

Referring to claim 33: wherein when it is determined that said phenomenon has occurred, said adopting section operates an alarm to call an operator (*FIG. 32, step S178 and column 23, lines 52-58: If the discharging port is completely clogged, a warning is displaced to prompt the replacement of recording heads*).

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Osawa et al. (US 6552819), as applied to claim 10, and further in view of Katsuragi (JP 403256445 A).

Suzuki et al., as modified, discloses the claimed invention as discussed above except wherein the monitoring section monitors whether at least one of failure the acquiring information by the acquiring section, inferior obtaining of original information by the acquiring section, and failure of image processing by the image processing section has occurred.

Katsuragi discloses a recording image apparatus having a monitoring section (*Abstract: A operation input monitoring function*) for monitoring the acquiring of original image data

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outputted from an original reading section 7 to an operation input part 3 in order to detect transmission failure or erroneous transmission.

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Suzuki, as modified, to include the monitoring section to monitor the failure of the acquiring information as disclosed by Katsuragi. The motivation for doing so would have been to eliminate or prevent transmission failure or erroneous transmission as taught by Katsuragi (*Abstract*).

8. Claims 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US 6036300) in view of Osawa et al. (US 6552819), as applied to claim 9, and further in view of Saito et al. (US 5508722).

Suzuki et al., as modified, discloses the claimed invention as discussed above except wherein when it is determined that a phenomenon for inducing a decrease in an image quality of an output image has occurred, in order to eliminate a decrease in the image quality which hinders section adjusts/increases, on the basis of image recording, the adopting results of the reading performed by the reading section, an ejection amount of recording droplets such that a decrease in the image quality of the output image is corrected.

Saito et al. discloses an ink jet apparatus having means for monitoring image quality of an output image by detecting the absence of ink discharge from a recording head and means for adjusting/increasing an ejection ink amount in accordance to the output of the detecting means (*column 2, lines 20-25; column 14, lines 29-33; column 15, lines 35-42*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Suzuki et al., as modified, to

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include means for adjusting/increasing ink ejection amount when the ink discharge is absence as disclosed by Saito et al. The motivation for doing so would have been to constant ink ejection amount in order to obtain higher quality recording images as taught by Saito et al. (*column 19, lines 57-61*).

Response to Arguments

- Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.
- Applicant's arguments filed 06/26/2006 regarding to claim 9 have been fully considered but they are not persuasive.

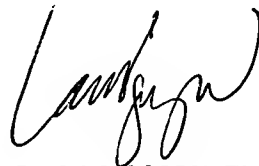
The applicant argued that “Osawa et al. does not determine from a decrease in vacant storage capacity that the phenomenon that hinders image recording has occurred”. It is the examiner’s point of view that based on Osawa et al.’s teaching (in the abstract) that the determination “whether or not there is a possibility of overrun” (overflow) to avoid “failure of image output”, the monitoring of the available capacity (or the vacant storage capacity) to prevent overrun/overflow is considered as a warning sign of “failure of image output” (or the image output may be hindered).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LAM S. NGUYEN